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ABSTRACT

The High School for the Health Professions (HSHP) is one of six Dallas Independent School District magnet schools. Its purpose is twofold: to effect an appropriate balance among ethnic groups through voluntary participation of students and to integrate health career preparation with a traditional high school education. The purpose of this evaluation was to collect and disseminate program information to the management as an aid for decision-making. It addressed the environment of the HSHP, the characteristics and scope of the instructional program, student participation in community-related experiences, and student attitudes and achievement. (Author/BW)

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EVALUATION OF THE HIGH SCHOOL FOR THE HEALTH PROFESSIONS, 1979-80

SP80-109-31-07

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Dallas, Texas
October 1980

Evaluation of the High School for the Health Professions, 79-80

Evaluators: Wayne Maples and Allen W. Scott

Objectives of the Program: The High School for the Health Professions (HSHP) is one of the six Dallas Independent School District magnet schools created to comply with the 1976 court-ordered desegregation plan. The fundamental purpose of the HSHP program is two-fold: to effect an appropriate balance among ethnic groups through voluntary participation of students and to integrate health career preparation with a traditional high school education. More specifically, the goals of the HSHP are to:

1. Develop a high level of awareness of health career opportunities in the student.
2. Provide community-based experience in the health field for the student.
3. Provide students with a marketable skill in the health field.
4. Relate subject matter in basic academic areas to career preparation in the health professions.
5. Provide adequate preparation for students wishing to pursue post-secondary education.
6. Provide guidance and counseling to assist students in making informed, realistic, career-related decisions relative to employment and/or further education.
7. Maintain follow-up of graduates.
8. Implement an ongoing curriculum revision process which provides for refinement, addition and deletion of program components.
9. Work closely with the Department of Research and Evaluation to refine the goal monitoring system for objectively assessing the degree of goal attainment.
10. Explore articulation with area colleges and universities concerning concomitant enrollment, advanced placement, etc.
11. Assist each student in becoming an informed consumer of health resources.

Purpose of the Evaluation: The purpose of the evaluation was to collect and disseminate program information to the management as an aid for decision making. For this purpose, context data detailing the characteristics of the students and instructional staff, process data concerning what changes were made in course offerings from 1978-79 to 1979-80, and product data involving the results of academic achievement tests, curriculum-related tests, a follow-up of graduates, and a student attitude survey were included. This information was intended to provide feedback for management.

Sample: All current full-time and part-time HSHP students served as the student sample for the student attitudes and achievement tests. All students in Health Careers Exploration, Medical Laboratory I and Anatomy and Physiology were tested with locally developed curriculum-related tests. All students who graduated in 1978-79 and had attended the HSHP for three years were sent follow-up questionnaires. A random sample of non-responders was contacted by telephone. Questionnaires were sent to sponsors of paid internships.

Evaluation Design: Context information on the characteristics of instructional staff was obtained from teacher questionnaires and included general demographic data, years of teaching experience, and educational level. Student context information was obtained from the DISD data base and included the distribution of enrollment across sex, ethnicity, grade-level, full- or part-time attendance status, and home school. Information about internship sponsors was obtained from files maintained at the HSHP.

Major Evaluation Questions and Results

1. What was the environment of the HSHP?

Table 1 presents a historical profile of characteristics of the student body since the program's inception. Total HSHP enrollment has steadily declined each year with an overall loss of 23% compared to a decline of 8% for the entire District in the same time period. In terms of enrollment trends, HSHP has undergone a faster decline in White enrollment than that seen in the District. As White enrollment in the District as a whole has declined, competition for these students has intensified. Parent fears and home-school staff pressure to maintain White enrollment in the home school have made recruitment for magnets difficult. HSHP saw a sharp drop in both White and Black enrollment in 1979-80 relative to District enrollment. Most of this drop seems to have been due to fear that the part-time option would not continue as an integral part of the magnet program. HSHP has, since its inception, generally failed to attract Hispanic students. HSHP cluster enrollment has been dominated by females due to sexual stereotypes concerning nursing. Career areas without these stereotypes are being initiated to attract more male students.

Table 1

Historical Profiles of HSHP Student Characteristics

Category Description	Academic Year 1976-77 N	%	1977-78 N	%	1978-79 N	%	1979-80 N	%
SEX								
Female	636	75	639	77	618	77	511	78
Male	217	25	189	23	181	23	144	22
ETHNICITY								
White	245	29	221	27	194	24	146	22
Black	506	59	527	64	523	66	425	65
Hispanic	92	11	70	8	70	9	72	11
Other	10	1	10	1	12	2	12	2
ATTENDANCE STATUS								
Full-time	297	35	439	53	512	64	492	76
Part-time	556	65	389	47	287	36	160	24
GRADE LEVEL								
Ninth	342	40	262	32	249	31	183	28
Tenth	229	27	301	36	241	30	196	30
Eleventh	202	24	181	22	182	23	162	25
Twelfth	80	9	84	10	127	16	114	17
CLUSTER PROGRAM								
Career Exploration	342	39	262	32	249	31	182	28
Dental Assisting	57	7	65	8	49	6	42	6
Dental Laboratory Technology	47	6	38	5	36	5	34	5
Health Assistant	64	8	52	6	47	10	31	5
Medical Careers	313	36	380	45	296	37	235	36
Paid Internships	30	4	31	4	53	7	54	8
Bioscience	-	-	-	-	26	3	20	3
Hospital Support Services	-	-	-	-	43	5	27	4
Central Supply	-	-	-	-	-	-	29	4
Total	853		828		799		655	

Table 2 presents a historical profile of home-school contributions to HSHP for the years 1977-78, 1978-79, and 1979-80. Approximately 60% of the student body in 1979-80 was drawn from five schools: South Oak Cliff (25%), Roosevelt (12%), Spruce (7%), Carter (7%), and North Dallas (6%). This pattern was also evident in past years. Of the schools that contributed 30 or more students in 1977-78, all have reduced contributions varying from 1% for Roosevelt (81 to 80 students) to 60% for Skyline (58 to 23 students).

Table 2

Historical Profile of Home Schools[a]

Home School[b]	1977-78 N	1977-78 %	1978-79 N	1978-79 %	1979-80 N	1979-80 %
South Oak Cliff	203	26	230	29	164	25
Roosevelt	81	10	92	12	80	12
Spruce	65	8	60	8	48	7
Carter	52	6	44	6	45	7
North Dallas	48	6	45	6	38	6
Wilson	23	3	29	4	31	5
Sunset	29	4	24	3	27	4
Jefferson	35	4	32	4	26	4
Kimball	32	4	31	4	26	4
Skyline	58	7	48	6	23	4
Adams	33	4	28	4	22	3
Pinkston	21	3	18	2	21	3
Samuell	14	2	20	3	19	3
Adamson	32	4	29	4	17	3
Lincoln	12	1	14	2	15	2
Smith	-	-	10	1	15	2
White	17	2	17	2	12	2
Hillcrest	23	3	11	1	10	2
Madison	14	2	14	2	10	2
Seagoville	5	1	2	0	3	0

[a]The home-school enrollment for 1976-77 was not available.
[b]Ordered by contribution in 1979-80.

Table 3 presents the demographic and professional characteristics of the faculty at the HSHP. The faculty was 83% female and 68% White. The average age was 41 and ranged from 24 to 62. It was notable that 42% of the faculty had advanced degrees and that 60% had more than six years of teaching or health or related vocational experience. Nearly half (49%) of the faculty had been at the HSHP since the program's inception.

Table 3
HSHP Faculty Characteristics

Characteristics	Number	Percentage
SEX		
Female	44	83
Male	9	17
ETHNICITY		
Black	15	28
Hispanic	2	4
White	36	68
AGE		
20-29	8	15
30-39	19	36
40-49	13	25
50-or more	13	25
DEGREE		
Vocational Certificate	2	4
Bachelor's	29	55
Master's	21	40
Doctorate	1	2
YEARS AT HSHP		
First	5	9
Second	14	26
Third	8	15
Fourth	26	49
YEARS WITH DISD		
1-5	25	47
6-10	14	26
11-15	8	15
16-or more	6	11
TOTAL TEACHING/ VOCATIONAL SERVICE		
1-5	21	40
6-10	14	26
11-15	9	17
16-or or more	9	17

2. What were the characteristics and scope of the instructional program?

The program provides students with career training in health care fields while at the same time providing them with traditional academic course material. The beginning student enrolls in the ninth-grade career exploration cluster involving careers exploration, health education and biology. Advanced students continue their health careers training in one of the following six clusters:

1. Medical Careers (2 years), providing instruction and "hands-on" activities in the areas of human anatomy and physiology, medical laboratory, and patient care services.

2. Dental Assisting (2 years), providing theory and practice in dental assisting.

3. Dental Laboratory Technology (2 years), offering instruction in the production of dental prostheses.

4. Health Assistant (1 year), offering experience in nursing skills and office practice.

5. Hospital Support Services (1 year), offering instruction and "hands-on" experience in dietetics, linen services, and housekeeping.

6. Central Supply Services (1 year), offering instruction and "hands-on" experience in dissemination of materials and supplies, sterilizing instruments, and preparing surgical trays (setups).

The only new cluster in 1979-80 was Central Supply Services which was split off from Hospital Support Services.

The following new clusters will be added in 1980-81: EEG Technologist, Medical Secretary, Medical Assistant, Health Care Services, and Licensed Vocational Nursing.

The Electroencephalographic (EEG) technologist records the electrical activity of the brain using an electroencephalograph. The technologist has knowledge of EEG equipment and procedures, normal brain activity, and abnormal EEG characteristics. The EEG technologist is a career area that is not stereotyped for females and thus should attract more males. The EEG program is in the process of accreditation and is unique to the country. EEG technology is a field currently with a sexual stereotype.Seniors who have completed Medical Careers and have instructors' recommendations will be eligible for entry into this program. After completion of the program, students will be eligible to become a certified Medical EEG technologist upon successful completion of the national certifying examination.

The Medical Secretary program requires special training in medical terminology to enable the medical secretary to transcribe patients' records from dictation, to assist in preparing research reports, and to complete many types of medical forms and records. One year of typing is a prerequisite for this course. Course work will include medical terminology, using transcription equipment, typing speed development, completing medical and dental insurance forms, reception and telephone responsibilities, bookkeeping, filing, preparing medical records, and medical law and ethics. Students in grades 11 and 12 will be eligible for entry into this program.

The Medical Assistant program prepares students to work with physicians or other primary care providers in examining and treating patients. This program includes coursework in patient preparation, assisting with examinations and treatments, performing various diagnostic tests, care of equipment and supplies, sterilization techniques, and medical office emergencies. Students in grades 11 and 12 will be eligible for entry into this program.

Health Care Services is the CVAE version of Medical Careers. Health Care Service is designed for students who desire to study health care concepts common to several health disciplines. Students will learn basic skills in nursing and laboratory technology, and will receive instruction in anatomy and physiology. Students in grades 10 and 11 will be eligible.

The Licensed Vocational Nursing (LVN) program replaces Health Assisting. The LVN program will prepare students with preclinical skills in vocational nursing. Coursework will include pharmacology, microbiology, medical-surgical nursing, nutrition, anatomy and physiology, first aid, and maternal and child care. After completion of classroom and clinical practice in HSHP, the students can transfer to the Skyline Adult Education LVN program after graduation. By completing additional courses in the Skyline Vocational Nursing program, students will be able to take licensure examinations and save a significant amount of time and money. HSHP students in grade 12 will be eligible for entry into this program.

3. To what extent did students participate in community-related experiences?

Community-related experiences include field trips, guest speakers, and paid and non-paid internships. School records were used to document field trips and guest speakers. Questionnaires were sent to the sponsors of paid and non-paid internships. The HSHP has successfully attracted health professionals to use valuable time to speak to HSHP students. Speakers from 24 organizations and 15 private practice physicians volunteered their time. This is an important and successful aspect of the total HSHP program. Table 4 presents a record of field trips by cluster and location of the field trips.

Table 4
Number and Location of Field Trips by Cluster

Cluster	Number of Trips	Location of Field Trip
Health Education	6	YMCA
Health Exploration	10	St. Paul Hospital
	8	Martin Luther King Center
	9	S.P.C.A.
	6	American Cancer Society
	11	VA Hospital
	7	American Heart Association
	10	Scottish Rite Hospital
Health Assisting	2	Skyline CDC
	2	Presbyterian Hospital
	2	El Centro College
	2	CC Young & Blanton Gardens Nursing Homes
	2	Scottish Rite Hospital
Hospital Support Services	2	Baylor Hospital
	2	Children's Medical Center
	2	Scottish Rite Hospital
	2	Parkland Hospital
	2	Presbyterian Hospital
Central Supply	2	Baylor Hospital
Bioscience	3	U.T. Health Science Center
All Seniors	2	El Centro
Patient Care	11	St. Paul Hospital
	11	Methodist Hospital
	8	Environmental Health Agency
	8	Parkland Hospital
Medical Laboratories	6	Wadley Blood Bank
	5	St. Paul Hospital
	2	UT Health Science Center
	1	Baylor Hospital
	1	Highland Park Animal Clinic
Anatomy And Physiology	4	Dallas Institute of Mortuary Science
	5	Parkland Hospital
Dental Assisting	1	Dallas Water Treatment Center
Total	158	

Second-year Medical Careers students were placed in unpaid internships at six area hospitals and the United Cerebral Palsy Agency. The unpaid internship program is an experiential, not a skills development, program. Students observe and/or work in the departments assigned for 2 hours for 6 days, a total of 12 hours. At the end of the semester, questionnaires were sent to the supervisors of the units involved. The supervisors rated the students on knowledge needed for the job, ability to apply knowledge, attendance and punctuality, willingness to learn, willingness to assist when called upon, ability to follow supervision, ability to interact effectively with employees and patients, personal appearance and attire, and the ability to recognize the difference between the world of work and the world of the classroom. Six students received unsatisfactory ratings on a single characteristic, whereas two students received generally unsatisfactory ratings. The other 27 students received excellent to satisfactory ratings. The ratings were only suggestive because of the short time the supervisors worked with the students. The following comments volunteered by the supervisors illustrate how successfully the students handled themselves:

> G___ was a great volunteer. The children reacted well to her and the staff found her helpful and conscientious.
>
> J___ was a tremendous asset to the program. Hope to see this student back as an employee.
>
> It was a pleasure having _____ in the department.
>
> K___ asked many questions that proved she was thinking about what she was doing.
>
> D___ seemed anxious to learn all she could about physical therapy and demonstrated a very caring attitude toward the patients. I have had patients comment later that they enjoyed her help.

The suggestion was made by several supervisors that the program could be improved if the amount of time students stayed was lengthened. The unpaid internship program occurs in the latter part of the second year in medical careers. Because of the comprehensive nature of the curriculum, an increase in time allocated to the internship program would take much needed time from the curriculum. The sponsors must be clearly informed that the program is basically experiential and is designed to expose the students to the health careers field. Supervisors should be made more aware of the difference between the unpaid and paid internship programs. The paid internship student is a senior near the end of his/her training. Students enrolled in the Health Occupations Cooperative Training (HOCT) cluster worked as paid interns for hospitals, nursing homes, laboratories, and private physicians at least 15 hours per week all semester.

Paid-internship questionnaires were mailed to 40 medical professionals supervising HSHP students in area hospitals and clinics. Twenty-seven questionnaires were returned by supervisors in the following institutions or private clinics:

Baylor Hospital	Medical Arts Hospital
Bristol General Hospital	Parkland Hospital
Caruth Rehabilitation Center	Presbyterian Hospital
Children's Medical Center	Presbyterian Village Nursing
Complete Laboratories	Southwestern Medical School
Dallas Osteopathic Hospital	St. Paul Hospital
Doctor's Hospital	Dr. N. J. Wilcox
Gaston Episcopal Hospital	Dr. Sanford Pick

All respondents felt that the paid internship program was an effective method of introducing students to the world of work in their occupational areas. Concerning future participation in the paid internship program, 21 (78%) responded favorably, 3 (11%) responded negatively, and 3 (11%) were undecided. On the issue of classroom preparation, 21 (78%) responded favorably, whereas 7 (22%) responded that classroom preparation was inadequate. Paid interns were rated on the same characteristics as unpaid interns. Overall the ratings were very favorable with only four students receiving an unsatisfactory rating on any characteristic. Two students received unsatisfactory ratings on knowledge needed for the job and recognition of the difference between the world of work and school. One student received an unsatisfactory rating on attendance-punctuality and another received an unsatisfactory rating on appropriateness of dress.

Although sponsors were generally pleased with the paid internship program, several comments were offered that should be considered. Student attendance and punctuality tended to suffer at the end of the year. Students need to be made aware that punctuality and attendance at the end of their internship is as important to the sponsor's final evaluation as at the beginning of the internship. It was also suggested that some students were mismatched in that their internship and abilities did not coincide. The question of an appropriate match between job area requirements and student ability is an issue that goes far beyond the scope of the paid internship program. It is a counselor's and general faculty's responsibility to counsel students concerning the appropriateness of career goals. Students with college-level skills should be counseled away from entry-level jobs for which they are clearly overqualified. This is a particularly difficult problem given that many qualified students are opting for the quick entry-level job because of financial problems in the home. On the other hand, students with extremely poor academic abilities should be counseled concerning the compatibility of their current achievement level and their ultimate career goals. For example, students reading at the fifth-grade level who want to be brain surgeons should be made very aware of the disparity between the skills they possess and the kinds of skills needed to reach their goal.

4. What was the effect of enrollment in the HSHP on student attitudes and achievement?

On April 15, 1980, all HSHP students in attendance participated in the 1979-80 Student Attitude Survey. The survey consisted of three multiple choice questions and 63 attitudinal statements divided into six areas: (a) General, attitudes toward the school as a whole; (b) Cluster, attitudes toward cluster classes and teachers; (c) Academic, attitudes toward academic classes and teachers; (d) Scheduling, concerning academic class load and lunch schedules; (e) Transportation, attitude of students who were bused toward busing; and (f) Recruitment/Counseling, attitudes toward recruitment and counselors. For a discussion of the survey including comparisons across magnets see the 1979-80 Magnet/CDC Student Attitude Survey.

Responses to the three multiple-choice items on the survey were informative. A large majority of students chose HSHP in order to prepare for a future career (396 or 82%) or to prepare for further study in the cluster area (52 or 11%). Eighteen students (4%), 17 full-time and one part-time, responded that they were attending the magnet in order to get out of their home school. The students' major source of information concerning HSHP came from the DISD Information Team (198 or 41%) and home-school counselors and teachers (153 or 32%). Other students and parents were the major information sources for 11% and 4% of the students, respectively. In response to what were their school plans for 1980-81, 16% (75) were graduating. After eliminating these students, 84% of the eligible students planned to return to HSHP, 7% planned to attend another DISD school, and 9% were undecided.

Within the true-false section of the survey, responses to the scheduling subscale indicated that 15% of the full-time and 32% of the part-time students had fewer than three academic classes daily. This is a matter of concern since District guidelines require that part-time magnet students receive at least three academic classes in their home schools.

In order to examine this issue with other than student-supplied information, the DISD data base was accessed to obtain course loads in the traditional academic areas of science, mathematics, social studies, English, and foreign languages. The emphasis was on traditional academic courses required for graduation. For this reason, certain courses such as typing, accounting, speech, and journalism were not included. This information was collected for all magnets and the CDC as well as a 10% random sample of full-time students attending comprehensive high schools. The inclusion of the comprehensive high school sample allowed comparisons between full-time students and part-time students. For all magnets and CDC, 17% of full-time students and 37% of part-time students were taking fewer than three traditional academic classes. The sample from all comprehensive high schools

showed that 23% of students attending comprehensive high schools full-time were enrolled in fewer than three academics. It appears that students attending the magnets/CDC were receiving more of the traditional academics than students attending comprehensive high schools. It would also appear that comprehensive high schools treated their part-time magnet students differently. Dividing part-time students into those attending the magnets in the morning and afternoon, 44% of the morning students and 29% of the afternoon students received fewer than three academics. Students who returned to their home schools in the afternoon received dramatically fewer academic courses. Concern has been expressed that many part-time students are being forced to complete their academics in summer school.

For the HSHP, 9% of full-time students and 34% of the part-time students had fewer than three traditional academic classes. This is consistent with the overall magnet figures of 17% for full-time and 37% for part-time students. It appears that at least for these traditional academic courses, HSHP students received a better-than-even opportunity to receive an academic education.

As regards the attitudinal section of the survey, the mean favorable response for the general subscale was 78%. Students were particularly satisfied with equipment and materials. They felt that their studies were worthwhile and interesting. HSHP students did not feel that the campus was attractive. The mean favorable response for the Cluster subscale was 82%. Students (96%) felt that cluster experiences would help in college but they (42%) also felt that they were rushed through the Student Learning Plans and that there was not enough "hands-on" activity (42%). The mean favorable response for full-time HSHP students on the Academic subscale was 65%. Student reaction was that the reading material was at the appropriate level but they needed more help from their teachers. Part-time student's reactions were similar to full-time students' in terms of the pattern of response. The only major difference was that, question-by-question, part-time students were more positive. The final subscale to be discussed is the Transportation subscale. This 10-item subscale was included to determine student attitudes toward busing. Only students who rode DISD buses were included in this discussion. The responses of full-time and part-time students did not differ significantly. Three questions involved safety. Though 74% of the students felt that the bus driver was concerned with their safety, only 47% felt that the buses were in safe and good repair, and 63% felt that the driver was a safe driver. Concerning scheduling, 70% of the students stated that the bus was nearly always on time and 71% felt that the driver would wait for them. Concerning how pleasant the busing experience was to students, overall 59% responded favorably.

The final issue of importance to be considered is whether different ethnic groups perceived the HSHP program differentially. Table 5 presents the subscale ratings broken down by ethnicity.

Table 5

Mean Subscale Ratings by Ethnicity

Ethnicity	N	Means			
		General	Cluster	Academic	Recruiting/ Counseling
		%	%	%	%
White	95	83	82	70	67
Black	320	75	82	66	60
Hispanic	52	83	84	62	68

White students rated academics somewhat higher than minority students. All students, regardless of ethnicity, rated cluster items high. On the General and Recruiting/Counseling subscales, White and Hispanic students had more positive attitudes than Black students.

The ultimate value of an instructional program can be determined by examining the products of the program. An initial attempt at examining the products of the magnet system was conducted by a mail and telephone questionnaire concerning the current educational and job status of 1979 graduates who had been in the magnet system since the 1976-77 school year. (See the 1979-80 Follow-up Study of 1979 Magnet School and CDC Graduates for a detailed discussion of all the magnet schools). Concerning employment, 56% of HSHP graduates contacted were employed, as compared to the magnet total of 55%. Concerning advanced education, 32% of HSHP graduates contacted were attending four year colleges while 21% were attending junior colleges. For the total magnet sample, 27% of the graduates were attending four year colleges while 27% were attending junior colleges. For employed participants of the follow-up, 32% were working in areas related to their HSHP cluster instruction. For HSHP student participants in the follow-up, 78% were continuing their post-secondary education in areas related to cluster instruction. This compares favorably to the magnet/CDC composite where 46% of the employed participants were working in related areas and 67% of the student participants were continuing their post-secondary education in related areas.

Academic results will focus on full-time students since they received their academics at the HSHP. The Basic Objectives Assessment Test (BOAT) was developed in the DISD to measure the ability of students to solve problems requiring a combination of skills taught in reading, mathematics, science-health, and social studies. The percentage of students enrolled in the HSHP who passed the BOAT was 79% for

ninth graders, 94% for tenth graders, and 87% for eleventh graders. This was considerably higher than total DISD figures, where 56% of the ninth graders, 71% of the tenth graders, and 82% of the eleventh graders passed the BOAT. Focusing on the ninth graders, who will be the first group required to pass the BOAT to get a diploma, the overall average score for the 22 who failed the BOAT at HSHP was 59% with nine students scoring between 65-69, seven students scoring between 55-64, and six students scoring less than 55.. The students with particularly low scores (54 and below) will be placed in an intensive BOAT tutoring class. The other students will be placed in this class for two weeks prior to the BOAT test in order to strengthen certain weaknesses. This strategy has been very successful at HSHP.

The Tests of Achievement and Proficiency (TAP) is a nationally standardized test measuring reading, mathematics, written expression, information sources, social studies, and science. The TAP replaces the Iowa Tests of Educational Development as the standard instrument for evaluation of academic proficiency for DISD high school students. Tables 6, 7, 8, and 9 present TAP national median percentiles for ninth, tenth, eleventh, and all grades, respectively. The composite national median percentile scores for ninth, tenth, and eleventh grades for full-time HSHP students were 39, 39, and 26, respectively; whereas for DISD ninth, tenth, and eleventh grades the scores were 23, 24, and 25, respectively. HSHP ninth- and tenth-grade full-time students significantly outperformed the District high school averages.

Differences between achievement scores across grade levels probably reflect different recruiting procedures and standards for retaining students as the program has matured. The achievement results basically show that performance declines as grade level increases. It would appear that the newer students were academically superior.

Curriculum-referenced tests were administered in Health Exploration, Medical Laboratory I, and Anatomy and Physiology I clusters during May 1980. Test content was directly linked to the curriculum, with the number of test items in a content area determined by teacher judgments of relative importance.

Table 6

Median Percentiles
From the 1980 TAP For
9th Grade Students at HSHP

Subtest	Full-Time (N = 124)	Part-Time (N = 46)	Total (N = 170)
Reading	38.8	51.0	41.8
Math	35.7	46.5	36.1
Written Expression	44.1	46.5	45.6
Information Source	41.4	46.4	44.4
Social Studies	41.5	48.7	44.0
Science	32.9	45.1	35.9
Composite	39.2	45.5	40.0

Note. TAP data are based on a national norming group.

Table 7

Median Percentiles
From the 1980 TAP For
10th Grade Students at HSHP

Subtest	Full-Time (N = 130)	Part-Time (N = 47)	Total (N = 177)
Reading	40.0	25.0	35.3
Math	27.5	21.5	27.0
Written Expression	38.8	29.3	36.2
Information Source	42.1	26.5	37.5
Social Studies	42.2	24.0	38.0
Science	37.8	27.9	33.3
Composite	38.5	20.4	35.6

Note. TAP data are based on a national norming group.

Table 8

Median Percentiles
From the 1980 TAP For
11th Grade Students at HSHP

Subtest	Full-Time (N = 109)	Part-Time (N = 29)	Total (N = 138)
Reading	32.4	27.0	32.1
Math	24.3	23.8	24.1
Written Expression	33.2	33.3	33.3
Information Source	29.3	29.0	29.2
Social Studies	34.1	35.0	34.3
Science	28.3	33.6	30.8
Composite	25.5	25.3	25.5

Note. TAP data are based on a national norming group.

Table 9

Median Percentiles
From the 1980 TAP For
All Students at HSHP

Subtest	Full-Time (N = 363)	Part-Time (N = 121)	Total (N = 485)
Reading	37.6	35.8	37.2
Math	30.6	27.3	28.4
Written Expression	39.7	38.5	39.1
Information Source	40.2	36.5	38.5
Social Studies	38.7	35.2	38.2
Science	33.1	34.5	33.5
Composite	36.5	33.2	35.5

Note. TAP data are based on a national norming group.

The Health Career Exploration Evaluation Instrument was a 68-item multiple choice test. The test items were derived from five content areas: interests, training, duties, vocabulary, and safety. Interest items tested student knowledge of the personality characteristics and interests of health professionals. Training items tested student knowledge of the educational training and professional requirements for various health professions. Items relating to duties of health professionals tested student knowledge of the duties performed by health professionals in various vocational areas. The vocabulary items focused on the identification of roots, prefixes, suffixes, and abbreviations used in health care. Safety items tested student knowledge of health care safety. Table 10 presents a breakdown of student performance by content area. Of particular interest is information on student mastery of the content areas. A student was considered to have mastered a particular content area if he/she answered 70% of the items in that area correctly. Setting mastery at 70% was consistent with the school-wide practice of using 70% as a standard.

Table 10

Health Exploration Summary Performance by Objective Area
(N = 155)

Content Area	Number of items	Mean (%)	Standard Deviation (%)	Students Passing Criterion (%)	KR20
Interest	14	74	17.3	65	0.63
Training	16	50	14.6	5	0.44
Duties	17	68	17.8	59	0.68
Vocabulary	17	68	17.7	54	0.70
Safety	4	66	23.5	57	0.13
Total Test	68	65	13.2	39	0.85

The mean for the Health Exploration test was 65% correct but only 39% of the Health Exploration students mastered the total test. This poor showing was due to the very low level of mastery of the items concerning educational and professional training required for health careers. Follow-ups with the instructors revealed that there was considerable inconsistency in instruction in this area. Some students received very detailed instruction in the educational and professional training requirements, whereas other students received much less detailed instruction. Both instruction and the test will be revised to reflect a change in emphasis. The emphasis will be on general educational requirements for the various health professions instead of detailed educational requirements such as the number of months in an internship. A consensus was reached that the very fine detail contained in the curriculum

was unnecessary. For example, it was concluded that it is important for students to know that Osteopathic physicians serve an internship after medical school but that it is not important for students to know whether the internship lasts for one or two years. This is particularly true since such details change. Performance on the other subscales was considered acceptable. Table 10 also presented a measure of internal consistency, the KR20. The KR20 gives an estimate of whether the items on a subscale measure the same concept. The KR20s for these subscales were considered acceptable, with the exception of the safety subscale which had too few items defining the scale to obtain a meaningful KR20.

The Anatomy and Physiology I Evaluation Instrument was a 179-item multiple choice test covering the following curricular areas: circulatory system, nervous system, skeletal-muscular system, digestive system, reproductive system, body organization, urinary system, respiratory system, skin, and endocrine system. The number of items testing these content areas varied depending upon the instructors' judgment of the importance of the particular content. Table 11 presents a summary of student performance by content area. Mastery in a content area was defined as 70% accuracy. The mean for the entire test was 69% correct with 45% of the students mastering the total test (reaching criterion). For the content areas, mean percent correct varied from a low of 61% on the Digestive system to 80% on the Endocrine system. Examining only the mean percent correct in Table 11, one might conclude that the students did equally well on the various content areas. Examination of the percent mastery column reveals that performance was poor on the Nervous (28% mastery) and Digestive (36% mastery) systems; moderate on Skin (49% mastery), Circulatory (51% mastery), Urinary (51% mastery), Body Organization (53% mastery), and Respiratory (65% mastery) systems; and acceptable on Reproductive (69% mastery), Skeletal-Muscular (74% mastery) and Endocrine (75% mastery) systems. Thus the percentage of students mastering a particular content area varied from 28% for the Nervous system material to 75% for the Endocrine system material. This ordering is not optimal since the Nervous system was considered much more important than the Endocrine system. The reasons for the poor performance in the important content areas of Circulatory, Nervous, and Digestive systems need to be investigated. Internal consistency for the different objective areas was acceptable.

Table 11

Anatomy and Physiology I Summary Performance by Objective Area
(N = 121)

System	Number of items	Mean (%)	Standard Deviation (%)	Students Passing Criterion (%)	KR20
Circulatory	30	69	15.6	51	0.76
Nervous	30	62	12.7	28	0.57
Skeletal-Muscular	20	75	14.0	74	0.62
Digestive	20	61	16.5	36	0.64
Reproductive	20	74	13.2	69	0.57
Body Organization	17	72	14.3	63	0.51
Urinary	15	70	15.2	51	0.49
Respiratory	14	73	14.6	65	0.47
Skin	8	64	19.3	49	0.39
Endocrine	5	80	18.0	75	0.36
Total Test	179	69	11.0	45	0.92

The Medical Laboratory I Evaluation Instrument was a 90-item multiple choice test. The test items were derived from three basic content areas: blood testing, urinalysis, and basic lab skills. The blood testing section included items covering nine objectives, the urinalysis section included items covering two objectives, and the basic lab skills section included items covering four objectives. Each objective was tested by six items. The objectives are listed in Table 12 along with the results. The overall mean for the test was 51%, with 15% of the Medical Laboratory students reaching a 70% criterion. For the general content areas students performed best on the basic skills section. This is fortunate since these skills are critical for future training in this area. A major deficit involved the lack of mastery of the metric measurement system since the metric system is used throughout the health professions and must be mastered. In the content area of blood testing, performance varied from a low of 17% mastery for counting red blood cells to a high of 68% mastery for counting white blood cells. The performance on the urinalysis objectives was generally rather low. This may be due to the fact that these objectives are taught last in the semester and students receive only a very abbreviated introduction. For the 15 objectives in the total test, five of the objectives were mastered by fewer than 40% of the students, six of the objectives were mastered by between 46% and 56% of the students, and four of the objectives were mastered by more than 60% of the students. It would appear

that the average student has not obtained a high level of mastery of the objectives in Medical Laboratory I. But it should be pointed out that the students in Medical Laboratory I took the test without review or warning. Students in Health Exploration and Anatomy and Physiology I reviewed the material before testing.

Table 12

Medical Laboratory Summary Performance by Content Area and Objective (N = 111)

Content Area	Number of items	Mean (%)	Standard Deviation (%)	Students Passing Criterion (%)	KR20
BLOOD TESTING	54	55	11.6	--	0.72
Hemoglobin	6	61	22.9	54	
Hemoglobin Det.	6	50	22.4	34	
Hematology	6	53	23.7	39	
Hematocrit	6	60	18.0	56	
Blood Typing	6	57	22.5	46	
Red Blood Count	6	40	19.0	17	
White Blood Count	6	67	20.0	68	
Blood Cells	6	60	22.0	51	
Collecting Blood	6	56	18.7	49	
URINALYSIS	12	52	19.9	--	0.54
Urine	6	45	22.0	25	
Urinalysis	6	55	24.2	46	
LAB SKILLS	24	63	13.8	--	0.60
Pipette	6	62	20.8	60	
Microscope	6	68	20.8	70	
Metrics	6	46	27.2	33	
Safety	6	75	18.8	82	
Total Test	90	57	11.2	15	0.82

Additional Information

Scott, A., and Anderson M. The 1979-80 Follow-up Study of 1979 Magnet School and CDC Graduates (SP80-112-31-07). Dallas, Texas: Dallas Independent School District, Department of Research and Evaluation, October 1980.

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